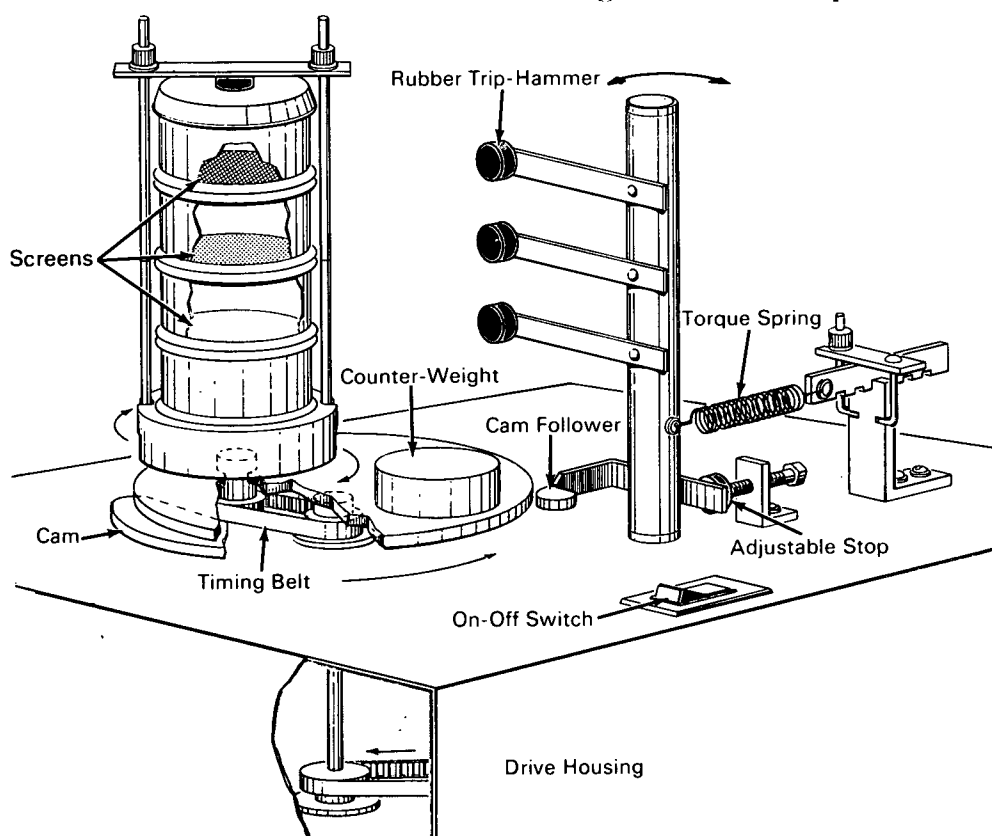


NASA TECH BRIEF



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Mechanical Sieve for Screening Mineral Samples



The mechanical sieve illustrated above was designed to screen both coarse and fine mineral samples. Three horizontal screens are mounted in a vertical stack, with the largest mesh screen on top and the smallest on the bottom, and with the specimen to be sieved loaded onto the topmost screen. The stack is mounted on a clockwise-rotating turntable, which itself is mounted a fixed distance from the center of a larger, counterclockwise-rotating table. The larger table is driven at a speed of approximately 150 rpm by an

electric motor and gear train, and the smaller table is driven at the same rate by a timing belt coupled to the central shaft of the large table. The net result of this motion is that the screens are driven around a circular track, while maintaining a constant orientation of the screen mesh relative to the observer.

Once per revolution, the cam on the perimeter of the large turntable engages the cam follower and trips the three rubber hammers, which tap the three screens in the horizontal plane. This combination of rotation

(continued overleaf)

and tapping produces an even flow of material across the screens, dislodges trapped particles that might otherwise clog the screens, and ensures rapid segregation of the sample into particles within four size ranges, from particles too large to pass through the topmost screen to those fine enough to pass through the bottom screen.

Notes:

1. This mechanical sieve is superior to various commercially available models in that it handles both coarse and fine material, clogs less frequently, and is quieter in operation. Although the present sieve is equipped to handle only three screens, the apparatus may be easily modified to incorporate four or more screens. The machine may be of use in educational institutions, civil engineering laboratories, and mining operations.

2. No additional documentation is available. Specific questions, however, may be directed to:
Technology Utilization Officer
Headquarters
National Aeronautics
and Space Administration
Washington, D.C. 20546
Reference: B70-10083

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

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